

**Before the
Federal Communications Commission
Washington, DC 20554**

In the Matters of)	
)	
Implementing Kari’s Law and Section 506 of)	PS Docket No. 18-261
RAY BAUM’s Act)	
)	
Inquiry Concerning 911 Access, Routing, and)	PS Docket No. 17-239
Location in Enterprise Communications Systems)	

OPENING COMMENTS OF BANDWIDTH INC.

I. INTRODUCTION

Based in Raleigh, North Carolina, Bandwidth Inc. (“Bandwidth”) is one of the nation’s leading providers of Internet Protocol (IP)-based communications services. Among the most important of Bandwidth’s IP-enabled services are the emergency calling services it offers in conjunction with an ever-expanding array of IP-enabled services. Because technology persistently challenges established law, industry practices and consumer expectations, Bandwidth believes the public interest is best served by embracing communication innovations that spring from IP technologies while simultaneously striving to meet the critical emergency service needs of consumers and public safety professionals alike.

To this end, Bandwidth supports the Commission’s efforts to implement Kari’s Law¹, Section 506 of Ray Baum’s Act² and to take further related steps to improve 911 emergency calling more

¹ Kari’s Law Act of 2017, Pub. L. No. 115-127, 132 Stat. 326 (2018) (codified at 47 U.S.C. § 623) (“Kari’s Law”).

² Section 506 of the Repack Airwaves Yielding Better Access for Users of Modern Services Act of 2018 (“Ray Baum’s Act”), Pub. L. No. 115-141, 132 Stat. 348, 1095 (codified at 47 U.S.C. § 615 note).

broadly as America's communications technologies and services evolve and advance.³ In light of the fact that multiline telephone systems ("MLTS") 911 regulations have not been holistically reviewed for a number of years⁴, taking the time to re-assess how MLTS 911 services are offered in today's advanced communications marketplace to consider how 911 calling support might be improved to the benefit of end-users across the country is appropriate. Enterprise consumers continue to embrace IP-based technologies and Bandwidth agrees that public safety needs are a critical component of these services "regardless of the technological platform used."⁵ The time is right to carefully consider today's enterprise marketplace and direct the industry toward more effective, manageable, unified national legal frameworks for MLTS 911 calling.

II. A MORE UNIFIED NATIONAL LEGAL FRAMEWORK FOR MLTS AND OTHER COMMUNICATIONS SERVICES WILL ADVANCE 911 CALLING AND PUBLIC SAFETY OBJECTIVES

One of the most promising and persistent characteristics of IP networks and technologies is that it reduces barriers to market entry while correspondingly helping advance innovative service that meet consumers' communications demands. Bandwidth operates a state-of-the-art nationwide IP-enabled communications network as well as offering some of the most advanced 911 calling capabilities in the marketplace today. In the intervening years since the 2003 *E911 Scoping Order*, VoIP services have advanced dramatically - driven by strong consumer adoption rates. IP-enabled communications platforms, whether cloud-based or hosted, bring rich new features to enterprise consumers as well, extending far beyond communications uses that have been

³ *In the Matters of Implementing Kari's Law and Section 506 of Ray Baum's Act, PS Docket No. 18-261 and Inquiry Concerning 911 Access, Routing and Location in Enterprise Communications Systems, PS Docket No. 17-239*, Notice of Proposed Rulemaking, FCC 18-132 (rel. Sept. 26, 2018) (hereinafter "*MLTS 911 NPRM*"), p 2.

⁴ *See: In the Matter of Inquiry Concerning 911 Access, Routing and Location in Enterprise Communications Systems, PS Docket No. 17-239*, Notice of Inquiry, FCC 17-125 (rel. Sept. 26, 2017) at ¶ 9 (hereinafter "*ECS 911 NOP*"). (Discussing *E911 Scoping Order*, 18 FCC Rcd at 25341).

⁵ Ray Baum's Act

traditionally associated with desk phones.⁶ The Commission's work to ensure that 911 calling keeps pace with IP communications advancements for MLTS consumers is critical. Bandwidth believes that pursuing appropriately structured consolidated MLTS 911 rules can facilitate significant improvements in emergency services overall while simultaneously accelerating broader adoption of feature-rich IP technologies.

Notwithstanding the genuine and impressive efforts on the parts of a number of states and counties that have focused on MLTS 911 in the past, Bandwidth believes uniform federal regulations that compel all necessary parties in today's technologically advanced MLTS environments to ensure effective 911 calling is enabled are necessary. The Commission's *ECS 911 NOI* demonstrated the confusing array of rules, laws and guidelines that surround legal definitions and corresponding service classifications related to 911 calling requirements today.⁷ The Commission has noted that "[a]s of 2016, 24 states had enacted, or had pending, legislation generally requiring enterprises over a certain size or purchasing a new PBX-based ECS system to implement and activate E911 capabilities in the system."⁸ However, in concert with these state legislative actions regarding MLTS 911, IP-based communications have continued to advance and break down barriers to entry for innovative service offerings in the enterprise space. Relatedly, the Commission again highlights challenges surrounding proper service classifications and state and federal jurisdiction for over-the-top ("OTT") smartphone applications.⁹ Therefore, Bandwidth supports the Commission's work to more clearly define key components and

⁶ See e.g.: Mark Vale, *Skype for Business – Understanding Location Based Routing*, June 2, 2016, <https://three65.blog/2016/06/02/skype-for-business-understanding-location-based-routing/>

⁷ See e.g. *ECS 911 NOI* Appendices A and B, which address different defined classes of communications services relative to 911 calling requirements as well as the myriad state laws applicable to ECS 911.

⁸ *ECS 911 NOI* at ¶ 14 FN 32 citing: 911 ETC, Current 911 MLTS Legislation, <http://www.911etc.com/legislation> (last visited August 21, 2017); 9-1-1 Enable, State-by-State E911 Legislation Summary at 14 (2012), <http://files.meetup.com/3299882/State-E911-Legislation-Summary.pdf> (911 Enable Report).

⁹ See: *MLTS 911 NPRM* at ¶ 83; See also: *In the Matter of Wireless E911 Location Accuracy Requirements, E911 Requirements for IP-Enabled Service Providers*, PS Docket No. 07-114 and WC Docket No. 05-196, Further Notice of Proposed Rulemaking and Notice of Inquiry, FCC 10-177 (rel. Sept. 23, 2010) at ¶¶ 31-32.

functions in the MLTS environment and believes such actions will significantly help reduce confusion in the marketplace.

Assuming that legislators and regulators share an ultimate goal to advance the widespread adoption of Next Generation 911¹⁰, which would include the end-to-end implementation of the NENA i3 SIP PIDF-Lo standard,¹¹ uniform FCC regulations for MLTS 911 should be embraced. Bandwidth is working with a number of other providers who are already implementing elements of the Next Generation 911 i3 specification for their own rational business reasons, including the development of MLTS 911 enhancements. In a growing number of these IP-based MLTS service instances, a voice service end-point is increasingly unlikely to remain fixed in single physical location at all times. With VOIP systems, such as IP-enabled MLTS, UCaaS or CPaaS, a VOIP end-point can be utilized as an Internet application or a device that is disconnected physically or moved as a soft agent to a completely different location readily. Therefore, Bandwidth agrees that 911 rules that only envision manual location updates to address information if and when an end-user changes his location are increasingly inadequate in an increasingly mobile, IP-enabled environment. Instead, Bandwidth believes that uniform FCC rules that are consistent with Next Generation 911-based standards will improve 911 effectiveness for all emergency calling stakeholders. This *MLTS 911 NPRM* represents a very real opportunity to advance public safety objectives in the enterprise environment dramatically.

III. IP TECHNOLOGIES DEPLOYED IN THE ENTERPRISE ENVIRONMENT CAN SUPPORT BETTER DISPATCHABLE LOCATION INFORMATION IN MORE CONSUMABLE FORMATS FOR PSAPS AND EMERGENCY RESPONDERS

¹⁰ See: https://www.nena.org/page/NG911_Project

¹¹ NENA-STA-010.2-2016 (originally 08-003).

A clear set of rules and guidelines at the federal level will yield positive results for MLTS consumers, service providers and the emergency service community. While there have been ongoing efforts to advance 911 support for MLTS at all levels over the years, the results have been somewhat spotty. It has now become imperative that the legal framework be updated to include current consumer expectations and marketplace dynamics that are increasingly driven by IP-enabled services. To this point, Bandwidth sees two elemental problems with the current approach to MLTS 911 that will be greatly improved by the Commission's proposals in this proceeding: (1) current rules do not adequately consider the inherently nomadic nature of modern IP communications and (2) where MLTS laws do exist, they typically don't provide useful guidance for standards-based implementations. Effective MLTS 911 rules and dispatchable location expectations must be oriented around a NENA i3 standard for SIP PIDF-Lo architectures,¹² which could ameliorate both of these problems.

In a geographically diverse multi-stakeholder environment such as MLTS 911, consistency and uniformity in regulations and best practices can be enormously valuable. An instructive example of a well-intentioned state MLTS statute that unfortunately falls short of capturing current technological capabilities and market behaviors is Utah's recently enacted MLTS 911 law.¹³ Like other state statutes that were included in Appendix B of the *ECS 911 NOI*, Utah's MLTS law remains fundamentally rooted in a "wire-line registered MSAG address" mindset. As described above, modern VOIP offerings make it increasingly unlikely that MLTS end-users will be tied to a single device that remains static at an assigned physical location in a building at all times. Thus, legacy methodologies that require use of static address information as the dispatchable location presentation are less and less effective all the time. Rather, in modern VOIP systems, such as ECS, UCaaS or CPaaS, the VOIP end-point can be untethered or moved as a soft agent to a completely different location readily. As a result, rules that mandate specific

¹² See: NENA-STA-010.2-2016 (originally 08-003) ("NENA i3 SIP PIDF-LO standard").

¹³ Utah Code § 53-10-601 *et. seq.*

address formats or contemplate using databases that only allow for periodic static address updates would be inadequate in a fully nomadic IP-enabled environment.¹⁴ Because an IP end-point can be a soft agent that resides on a mobile device, like a smart-phone, a laptop or tablet (which could be completely outside the expected building environment), more accurate and dynamic end-user location information could be presented in the form of latitude-longitude information or “X/Y coordinates” instead of, or in addition to, a civic address and floor number.

Thus, what would most advance location accuracy for MLTS 911 are rules and guidelines that embrace IP technologies and their inherent nomadic capabilities. Bandwidth supports the Commission’s proposed interpretation of the Ray Baum Act definition of “dispatchable location.”¹⁵ In fact, as an all-IP based provider Bandwidth is actively deploying 911 solutions routed in the NENA i3 SIP PIDF-Lo standards.¹⁶ NENA i3 generally, and SIP PIDF-LO more specifically, satisfy the need for a variety of “Location Objects” including *both* civic address and latitude-longitude representations while also envisioning future location identifiers that may be incorporated as part of the standard. Further, the “Location Objects” are validated in advance of calls but selected at call time thus fulfilling the requirements of a fully nomadic environment. Bandwidth therefore is in support of the Commission’s position to refrain from mandating “specific location technologies or solutions” in favor of “marketplace flexibility.”¹⁷ Finally, it is worth highlighting that widespread benefits would not be limited to MLTS 911 use-case scenarios but could be deployed across other IP-enabled services as well. Local, state, and federal 911 laws, rules, industry standards and best practices generally share a common goal to present the most accurate location information available in a format that is most readily utilized

¹⁴ For example, Bandwidth is not in favor of rules that would mandate the use of the National Emergency Address Database (“NEAD”) for provisioning, obtaining or presenting dispatchable location information in MLTS 911 scenarios.

¹⁵ *MLTS 911 NPRM* at ¶ 56.

¹⁶ See: <https://www.bandwidth.com/9-1-1/dynamic-location-routing/>

¹⁷ *MLTS 911 NPRM* at ¶ 59.

by emergency call takers.¹⁸ As IP-enabled services become increasingly nomadic or entirely mobile, the need for dynamic, yet accurate, location information increases dramatically.

IV. CONCLUSION

Bandwidth applauds the Commission's on-going efforts to support emergency calling that protects consumers as innovative IP-enabled services grow and appreciates the opportunity to comment in this *MLTS 911 NPRM*. IP-based innovations of all kinds continue to flourish and Bandwidth is committed to providing IP-enabled end-users with the ability to receive emergency responses when they need them. MLTS end-users deserve consistent effective emergency calling capabilities in their office, hotel or campus environments at levels they otherwise expect to have in an individual consumer environment. Bandwidth looks forward to continuing its engagement in this Commission-lead effort to encourage all industry stakeholders to help resolve critical gaps that too often risk the effectiveness of emergency responses in today's enterprise environment.

Respectfully submitted,

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¹⁸ 47 C.F.R. § 9.5, 47 C.F.R. §20.18; *See also: In the Matter of Wireless E911 Location Accuracy Requirements, PS Docket No. 07-114*, Third Further Notice of Proposed Rulemaking, FCC 14-13 (rel. Feb. 21, 2014) at FN 2. ("We note however, that we will continue to examine whether it is appropriate to establish indoor location requirements for other categories of services – including service by VoIP and over-the-top providers.").